



from the author

29

THE CHOLERA

NOT TO BE ARRESTED BY

QUARANTINE:

A BRIEF

HISTORICAL SKETCH OF THE GREAT EPIDEMIC OF 1817,

AND ITS

INVASIONS OF EUROPE IN 1831-2 & 1847:

WITH PRACTICAL

REMARKS ON THE TREATMENT,

PREVENTIVE AND CURATIVE, OF THE DISEASE.

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ETC.

" Internal sanitary arrangements, and not quarantine or sanitary lines, are the safeguards of nations."—*Registrar General's Report for the Quarter ending September 30, 1847.*

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TO
RICHARD OWEN, Esq., F.R.S.,

HUNTERIAN PROFESSOR
TO THE ROYAL COLLEGE OF SURGEONS OF ENGLAND, ETC. ETC.

MY DEAR SIR,

It is with very great pleasure that I inscribe these pages to you. They contain views which I have long held, and which I communicated to the public first in my Essay on "Quarantine and the Plague," October 1846, and subsequently at greater length in an Article on the "Epidemic Cholera," which appeared in the MEDICO-CHIRURGICAL REVIEW for last April, when that Journal was under my co-editorial management. While the present sheets were passing through the press, the very valuable Report of the Metropolitan Sanitary Commission, of which you are so distinguished a member, was published, and it was with feelings of no ordinary satisfaction I found that the Commissioners had come to conclusions so much in accordance with my own. If the reasonings and illustrations,

adduced in the following remarks, have the effect of establishing the public mind in the soundness of these conclusions—the influence of which cannot fail to be powerfully felt on the general question of Quarantine and Sanitary Reform—one great object of my labour will be amply fulfilled.

Gladly availing myself of the present opportunity to express my sincere admiration of your high talents and the value I attach to our long-continued friendship,

I remain,

My Dear Sir,

Very truly your's,

GAVIN MILROY.

30, FITZROY SQUARE,

14th December, 1847.

EPIDEMIC CHOLERA,

§c. §c. §c.

THE object of the following observations is two-fold—*first*, to determine, if possible, that most important point in the natural history of Epidemic Cholera, how and in what way is it, or rather its producing cause, conveyed from one region of the earth to another; and *secondly*, to point out some of the leading principles that should direct the physician in the treatment, preventive as well as curative, of this most malignant disease. The enquiry is therefore, full of interest to all, to the public generally as well as to the medical profession in particular; for, on the one hand, it has very obvious bearings, in various points of view, on the social welfare of the community; and, on the other, it involves the consideration of some of the most important questions that belong to therapeutic science. I may premise, that it forms no part of my present plan to give any technical or nosological description of the pestilence, which, from the extent of its range and the fearfulness of its devastations, has, during the last thirty years, attracted so much attention in almost every nation of the world; this has been most ably and accurately done by numerous writers well known to every professional reader. My main object is altogether of a more general character; viz., to take a rapid, but faithful, review of the more prominent circumstances connected with the rise, diffusion, and pestiferous character of the disease, comparing it with other epidemics of a somewhat analogous nature, and thence to seek to deduce what seem to be legitimate inferences respecting its ordinary mode of transmission from place to place, and the measures that are best calculated to abate its severity and diminish the consequent loss of human life.

It should be here remarked, that the terms *epidemic*, *pestilence*, *pestilential*, are used in the following observations as nearly synonymous; the only difference between them being, that the two last are employed to designate a malignant and fatal kind of the first. What is meant to be expressed by them all is simply this; the character or attribute of certain diseases to break forth at irregular intervals and generally without any appreciable cause, to spread over large districts or regions of the earth, lasting usually for a limited period of time, and then gradually and entirely disappearing. If it be kept in mind that a *blight* in the vegetable world, such as that which has of late years affected the potatoe-plant, is in very many respects the analogue of an epidemic or pestilence in the animal one, a perfect idea will be had of what is intended to be conveyed. In the sequel, I shall have more than one occasion to allude to this comparison.

That the general as well as special history of Epidemic Diseases—more especially in reference to the conditions in which they are apt to occur, the circumstances which seem to favour or obstruct their development and spread, the mutual affinities and relations which subsist between many of them, and the influence which hygienic and other means have upon their progress, duration and fatality—is a subject of deep importance to every physician, will be admitted by all; it demands his most serious attention, not only as a member of the medical profession, but as one of the social community among which he resides, and of the state of which he is a citizen. And yet, can we truly say that, for very many years past, it has met with that consideration which its great and manifold gravity requires, or that it has been investigated in that spirit of enlightened and comprehensive research, due to it as a theme on which the most conflicting opinions have been held? A calm examination of many of these opinions would speedily serve to show that but little progress has been made in sound knowledge upon some of the most essential points in the enquiry; and that not a few of our predecessors in the last, and even in the preceding, century entertained much more just ideas touching the leading features of epidemic diseases than have been generally prevalent during the present one, and even up to the year in which we live. The existing records of Quarantine medi-

cine too painfully proclaim the truth of this assertion. And why has this been so? The reason, I think, is obvious. Our modern medical writers have far too commonly limited their thoughts and attention to a few and detached particulars of a wide-spread malady, whether migratory or not, without taking into regard the great points of its entire history. Individual facts have been made to assume the importance of general principles and laws; and thus the physician has often been led into the very same blunder which a military officer would commit, if, by merely watching the movements and operations of a detached party of the enemy in one district of a country, he should thereupon undertake to determine the main causes which led to the issue of a whole campaign.

Most readers will remember how great was the agitation of the public mind prior to, and for some time after, the invasion of the Epidemic Cholera in 1831. This agitation was unquestionably not a little increased by the evident confusion and bewilderment that existed in the ranks of the medical profession. True, the disease was then new to this country and consequently to the mass of practitioners in it. So far, some allowance must be made for the many errors that were committed, and the extravagancies that were perpetrated, even by physicians of large experience and of high official standing. But now there could be no such apology or excuse offered, if plans and measures, which have hitherto been tried and found to be utterly useless, should again be sought to be re-instituted in this country, as they have already been in some countries on the Continent, and if the fears of certain alarmists were allowed to predominate over the well-pondered convictions of the most impartial enquirers. It is sometimes said that we know just about as much, and no more, of the epidemic cholera in the present day, as we did seventeen years ago when it was altogether strange among us. In one sense, indeed, this is perfectly true. The source or primary cause of the pestilence, the why and the wherefore of its appearance now and its subsidence and cessation then, of its lulls and outbreaks, of its journeyings in that direction and not in this, of its sparing some countries and devastating others,—on these and such like questions we are indeed as ignorant as we were then, nor is the next generation

likely to be more enlightened as to their true nature than the present. But in another sense the statement is altogether most inaccurate. In many respects, our knowledge of the disease is greatly in advance of what it then was. The knowledge may indeed be of a negative kind, but it is not the less real and practically useful. For, have we not been taught, beyond any possibility of mistake, the utter inefficacy of all, even the most stringent, means that can be employed by man to check its course or to avert its invasion?—and are not medical men now better able, than they were formerly, to appreciate the worth and value of the therapeutic proposals and suggestions which will doubtless be most prolifically brought forward, when the enemy again makes its appearance upon our shores?

Touehing these two important particulars, the experience of the former visitation cannot but be of most admonitory instructiveness to every one, who has wisely learned to judge of things in Nature to come by those which have already taken place, and to profit by the lessons of others as well as by the results of his own observation. But, without pursuing this subject further at present,—for it will again come under consideration—I wish now to draw the reader's attention, without further delay, to a brief sketch or narrative of the history of the disease which it is the principal object of these pages to illustrate.

That the malignant form of Cholera was perfectly well known to, and has been very accurately described by, several medical writers of last century, must, I think, be conceded by every one who has read the descriptions which Curtis, Girdleston, Duffin and others have given of the disease which they witnessed in the East Indies, and to which the appellation of *mort de chien*, from the extreme virulence of its nature, had been applied by the French practitioners. There is not a single symptom exhibited in the cholera of the present day, that is not recorded to have belonged to the malady mentioned by these gentlemen. For example, what can be more graphically descriptive of the former than the following, necessarily very brief, extracts from the writings of the first two of these gentlemen? Curtis, speaking of the *mort de chien* at Trineomalee in 1782, and after having enumerated the successive symptoms of the disease, says:—"All

this while, the purging continued frequent, and exhibited nothing but a thin watery matter or mucus. In many, the stomach became at last so irritable that nothing could be got to rest upon it ; but every thing that was drank was spouted out immediately, without straining or retching. The countenance and extremities became livid ; the pulsations of the heart more quick, frequent, and feeble ; the breathing began to become more laborious and panting ; and, in fine, the whole powers of life fell under such a great and speedy collapse, as to be soon beyond the power of recovery."

And Girdleston has described with equal accuracy the disease, as observed by him in the naval hospital at Madras in the course of the same year. " The hands and feet," says he, " generally became sodden with cold sweat ; the nails livid ; the pulse more feeble and frequent ; and the breath so condensed as to be both seen and felt issuing in a cold stream at a considerable distance. The thirst was insatiable ; the tongue whitish, but never dry ; vomitings became almost incessant ; the spasms, cold sweats and thirst increased with the vomitings. * * * * Some died in the first hour of the attack ; others lived a day or two with remissions."

It would be easy, if need were, to multiply like quotations from other writers of that day, to shew that the disease witnessed by them, in the course of the last century, was in no particular distinguishable from that to which so much attention has been paid during the last thirty years ; and if this were not sufficient to prove their identity, I might appeal to the testimony of various medical men who were in India for several years before, as well as after, the outbreak of the pestilence in 1817, and who must have been fully competent to determine this question. The limits alone of this pamphlet prevent me from quoting their evidence at length. Not only had the disease been seen, previously to that time, in its *sporadic* or occasional form, and as an *endemic* of the country, but we have most authentic accounts of more than one dreadful *epidemic* or wide-spread invasion of it, in different parts of Hindostan. Thus we read that, in the Spring of 1781, a body of troops, on their way to join Sir Eyre Coote's army, was suddenly attacked near Ganjam. " It assailed them with incon-

ceivable fury. Men, previously in perfect health, dropt down by dozens, and those even less severely affected were generally dead or past recovery within less than an hour. The spasms of the extremities and trunk were dreadful; and distressing vomiting and purging were present in all." And, in proof of the migratory nature of that pestilence, we find that the disease " afterwards found its way to Calcutta; and, after chiefly affecting the native population, so as to occasion a great mortality during the period of a fortnight, it generally abated, and then pursued its course to the northward." Two years subsequently to this outbreak, it appears that the Cholera destroyed upwards of 20,000 people, assembled on occasion of a festival at Hurdwar; and Sonnerat, in his travels, alludes to an epidemic which, in one visitation, carried off above 60,000 persons from Cherigan to Pondicherry.

From such accounts as these, it is perfectly obvious that the pestilence of the present century is not, as has been asserted by a few writers, a new disease, unheard of and unknown before 1817. It is quite true that, in that year, the Cholera of India acquired a greater force of diffusive energy and a more abiding perpetuity of existence than it had previously exhibited; for, independently of its two great European migrations, it has unquestionably, since the period named, been far more frequent and more widely spread over Hindostan than it was before. As to the cause or causes, indeed, which produced this remarkable change, we need scarcely say that they are altogether inscrutable to us; nor can we wonder at this, when we consider our utter ignorance as to other great phenomena in the circle of Nature's works;—why, for example, the eruption of a volcano should occur in one year and not in another, or why a hurricane or inundation should desolate this region and spare the one that is adjoining to it. All that we can say respecting the origin of the fearful epidemic of 1817, is that its outbreak was preceded by a season of uncommon sickness, produced, it was generally believed, by excessive rains and great vicissitudes of weather. There had been much suffering among the inhabitants, and a larger amount of mortality than usual in many parts of the Indian peninsula, during the latter part of 1816 and the commencement of 1817. It was in the Summer of this year that it suddenly broke forth

with great fury in various towns and localities in the delta of the Ganges. Some writers have attempted to fix the exact spot where it first appeared, and they have very confidently stated that this was at Jessore, situated on one of the central issuing branches of the mighty river. But the assertion in question has been most convincingly shewn, by more than one medical gentleman who was in India at the time, to be destitute of foundation; so that the only reason that can be alleged for its occasional repetition, in the present day, seems to be that it is supposed to give an air of probability to the doctrine of the disease having been spread by infection from one sickly spot, as from a centre of contamination, to the districts all round. The truth, however, is that the pestilence sprang up in numerous places, and some of these too at great distances from each other, about one and the same time. We have only to examine such a map as that which was drawn up by Mr. Orton within two or three years after its first appearance, and wherein the dates when it broke out at different towns and stations throughout the Indian peninsula are given, to be satisfied of the truth of this fact. Without particularising any of the numerous evidences that might be thence drawn, as utterly inconsistent with the idea of direct infection being the only or chief agency in the dissemination of the pestilence, it may be sufficient to allude to its occasional outbursts, and these too of great violence, at places very remote from the prevailing scene of its ravages, while the intermediate districts remained as yet intact. One of the most remarkable of these was the dreadful eruption of it that took place towards the latter end of 1817, in the camp of the Marquis of Hastings in Bundelcund, upwards of a thousand miles from the Gangetic delta. We shall afterwards have to direct the reader's attention to a very similar occurrence of more recent date, and one which equally proclaims how mysterious and unsearchable are, on many occasions, the movements of the enemy that we have to contend with.

In 1818, the disease, besides spreading over the entire extent of Hindostan from the Himalaya mountains to Cape Comorin, extended to the Burmese empire, Arracan and Malacca; and in 1819 it visited Penang, Sumatra, Singapore, Siam, Ceylon, and the Mauritius. In 1820, it reached Tonquin, Cambogia, Cochin

China, the southern parts of China, the Philippines, &c. ; and, in the following year, besides visiting many of the islands in the Indian ocean, it made its appearance at Muscat in Arabia, and at Bagdad, besides other places in the Persian gulf. During the following two years, while still prevailing in many of the regions to the east of India, it spread through Persia, Syria, and Palestine, extending also, in a more northerly direction, towards Georgia and Circassia. In 1823, it appeared at Astrakan on the northern shores of the Caspian, and also at Orenburg, some hundred miles to the northward, on the confines of Russian Tartary. For the next five or six years, there seems to have been a lull in the diffusive power of the pestilence; its devastating march westward was thought to be arrested; and it was vainly believed that, as it was of Asiatic origin, it would be almost confined to the continent that gave it birth. There is every reason to believe that, in the interval between 1823 and 1829, it existed, with greater or less malignancy, not only in different towns in the north of Persia, but also in those vast unexplored regions that stretch between China on the east, and the shores of the Caspian on the west.* Be this as it may, it was in August of the last-mentioned year that it broke out a second time, and with great violence—no person could tell why or whence—at Orenburg; and about the same time, or a little later, it appeared at Tabreez, Tiflis, and other places on the Georgian frontiers of Persia and Russia. In July 1830, it again made its appearance at Astrakan with intense malignity, carrying off 4000 persons in that city, and upwards of 20,000 in the province, within the space of two or three weeks. Thence it extended along the course of the Volga, visiting the towns of Saratoff, Tamboff, &c. until it reached Moscow in September. Besides following this course, it had also travelled in a more westerly direction, towards the northern shores of the Black Sea, and thence along the lines of several of the rivers to the southern and central parts of European Russia. It was at Poland in the beginning of 1831, and proved very destructive at Warsaw and other places in that un-

* Dr. Merriman states that "it reached Siberia in 1827."—*Vide Medico-Chirurgical Transactions for 1844.*

happy country in April and May. About the end of the latter month, it appeared at Riga and Dantzic; in June and July, at Petersburg and Cronstadt; at the same time extending through Galicia and Hungary to Vienna and other parts in the Austrian dominions. While penetrating into the heart of Europe, it had not spared Egypt; a dreadful mortality took place at Cairo. Smyrna, also, and Constantinople were visited about the end of the summer. In August it was at Berlin, in September at Hamburg; and, at length, on the 26th of October, the first officially-declared case—for many of almost equal severity had been observed for months before—took place at Sunderland. Three or four weeks subsequently, it appeared at Newcastle; and, in December, at North Shields, Gateshead, Tynemouth and other adjacent places, as well as at Haddington in Scotland. It was not until the second week in February, 1832, that the first case occurred in London;—although, be it remembered, there had been an incessant and uninterrupted communication by land between the metropolis and the north. In the second week of March it was reported at Calais, and, a fortnight later, at Paris. In June, it appeared at Quebec and Montreal, and about the same time at New York. In July it spread to Philadelphia and several other cities of the United States, and thence over nearly the whole of the American continent. In the early part of 1833, it was at the Havannah and some others of the West India islands. From the New World it seems to have wheeled round upon its march; for it was not until the following year that Spain, and according to one account Sweden also, was visited by the pestilence. It is worthy of notice that there was a partial and slight return of the disease experienced in this country in the course of that year, 1834. In 1835 it re-appeared in the South of France, and, passing along the southern coast, attacked Genoa and some other towns on the shores of the Mediterranean; but it did not visit Rome or Sicily, at least with any degree of severity, until 1837, when it proved very destructive for several weeks in the Eternal City, carrying off, during the height of the epidemic, as many as 300 in the course of a day. In the course of that year also, the disease again manifested itself at Dantzic, Berlin, and other parts in the north of Germany; and subse-

quently, namely, in the month of October, occurred that singular, isolated, and transitory manifestation of it on board the Dreadnought hospital ship in the Thames, which has been so well described by Dr. Budd and Mr. Busk in the *Medico-Chirurgical Transactions* for 1838. After that time it ceased to be heard of in any part of Europe.

Such was the world-wide career of the great pestilence of the 19th century ; a pestilence which, in point of the range of its diffusion and the destructive ravages which it produced, exceeded perhaps any of which there is a record, even the Black Death of the 14th century. Nothing seemed equal to oppose its progress. It scaled mountains many thousand feet in height ; it crossed the Indian and Atlantic oceans ; it traversed wide deserts of sandy plain. At one time it advanced, and that too often by a steady and easily traceable march, along a certain line or track ; while, at another, it suddenly appeared many hundred miles off, without having affected the intermediate country. Although it usually followed the course of great rivers, it by no means confined itself to any one route or channel of communication. It steered its way in the face of the strongest winds, and of every other physical impediment ; and, as we have already intimated, all human attempts to arrest or even delay its progress seemed utterly impotent. Its advances were certainly greatest in warm weather ; but yet it prevailed in all seasons and latitudes, from the burning summer of Java to the freezing winter of Moscow. In some places and in some years, it came as a secret foe, breathed its poison, and ceased within a few days or weeks ; while in others, and without any recognisable cause, it lingered for many months. Its victims were chiefly, as indeed is the case with all pestilential diseases, amongst the poor and intemperate ; but the higher classes were far from being exempt from its power : still there was ample evidence to shew that the mortality was almost invariably commensurate with the filth and destitution of the inhabitants and the impurity of their abodes, and consequently that, in most countries, its fatality was frightfully increased by the neglect of the most obvious and simple sanitary measures. In a few instances it revisited, at intervals of from one to three or four years, certain places or limited points on the face of Europe ;

and each return was generally milder than its predecessor.* Lastly, it may be noticed that the same individual has been known to have had two, and even three, attacks of the disease.

We have said that the mortality produced by the epidemic cholera probably very far surpassed that of any other pestilence of which there is an authentic account. In India alone it is supposed to have swept off, in the thirteen years from 1817 to 1830, upwards of fifteen millions of people. The island of Java in 1822 lost more than 100,000 of its inhabitants. In Pekin and other cities of China the mortality, there is reason to believe, was still more frightful. In Bussorah and Bagdad, a third of the inhabitants was carried off in little more than a month; and, in some parts of Syria, the ravages committed by the pestilence were even greater than this. Many of the countries of Europe, it is well known, suffered most severely. In Russia upwards of 60,000 perished, and in Paris alone the number of deaths was little short of 20,000, in the course of about six months. In our own country, including England, Scotland, and Ireland, upwards of 52,000, it has been calculated, perished of the cholera.

We shall afterwards have occasion to allude to the ratio of mortality, or proportion of deaths to the number of persons attacked: at present, we proceed to give a short account of the epidemic which is now committing its ravages in the east of Europe, and will most probably, ere long, make its appearance upon our own shores.

It is not easy to determine the exact date of its rise, or when it began to assume its migratory course westward. We know that the disease existed in a sporadic form and with considerable severity, in many parts of Persia in 1842 and 1843, and that it continued to be heard of there at intervals during the following two years. In the early part of 1845, it prevailed with great violence along the banks of the Indus, and about the same time, or a little later, it proved very destructive in Affghanistan. Thence it seems to have extended into Persia, traversing that country from east to

* The re-visitation at Berlin, in 1837, was an exception to this remark; for in that year it proved more fatal, although of shorter duration, than in 1831.

west, and spreading northwards into Tartary, and southwards into Kurdistan and into the pachalick of Bagdad. The St. Petersburg Gazette asserts that it was conveyed from Herat to Samarcand in September 1845, and into Bochara in the November following. Another account makes the pestilence to commence in, and emanate from, Mushed, in the north-east of Persia. Of course, but little reliance can be placed upon either statement. All that we can affirm with certainty is that, after having been quiescent during the winter of 1845-6, it broke out with extreme severity in the following May at Teheran, carrying off as many as 300 a day for several weeks, and reducing the population of that town by at least 20,000 souls. The description given of the cases shews the extreme malignancy of the epidemic:—"Those, who were attacked, dropped suddenly down in a state of lethargy, and, at the end of two or three hours, expired without any convulsions or vomiting, but from a complete stagnation of the blood, to which no remedies could restore its circulation." Now it is a fact full of interest to the medical enquirer that, at the very time when this work of devastation was going on in the north of Persia, there took place at Kurrachee, near the mouth of the Indus, that terrific outburst of the pestilence which, in the course of a few days, swept off upwards of 8000 victims. The description that has been given by an eye-witness of the scene is so full of fearful and instructive interest, as regards some of the most striking characters of pestilential visitations, that we cannot withhold a brief account of its leading particulars.

The heat had been intense during the first fortnight in June, but the station remained tolerably healthy. On the 14th, a Sunday, the atmosphere was more than usually stagnant and oppressive; one correspondent, who was present, says:—"the very heavens seemed drawn down upon our shoulders; the feeling was suffocating." A dark portentous-looking cloud crept up the sky as the troops were proceeding to church, and a sudden burst of wind threatened the buildings. It passed away almost as speedily as it came, and, when the worshippers retired, the air was as still as when they assembled. At the same hour did the pestilence appear. Before midnight, nine soldiers of the 86th regiment were dead; and men began to be brought into hospital

in such numbers that it was difficult to make arrangements for their reception. It was a fearful night. With morning, came the tidings that the pestilence was overspreading the town, and that fifty persons had already fallen victims to its deadly poison. How awful must have been the rapidity of the attack when we learn that sometimes, within little more than five minutes, hale and hearty men were seized, cramped, collapsed, and dead ! The only thing we can compare it to is the deadly effect of a serpent's venom. Men, attending the burials of their comrades, were attacked, carried to the hospital, and buried themselves the next morning. Pits were dug in the churchyard, morning and evening ; sown up in their beddings and coffinless, the dead were laid side by side, one service read over all ! For the next five days, it raged with appalling fury ; it then abated in its intensity, but continued to hover around the place for about another week. Within less than a fortnight, 900 Europeans, including 815 fighting men, were swept away. Besides these, 600 native soldiers, and 7000 of the camp followers and inhabitants of the town had been hurried into eternity ! What must have been the scene of desolation and the sickening pollution of the air after such a visitation, when nearly 9000 bodies were festering under the ground beneath a tropical sun ! It may be worthy of notice that, at the time when the cholera was raging in its full fury at Kurrachee, a very virulent kind of fever prevailed at Sukkur, about 180 miles or so off ; it often proved fatal in the course of a few hours. Hyderabad, intermediate between the two places, was visited almost immediately afterwards by the cholera, but not severely ; and it quickly disappeared.

Altogether, this comparatively insulated eruption at Kurrachee, while the head-quarters, so to speak, of the pestilence were in the north of Persia, presents an instance very analogous to that of the equally dreadful invasion of the disease in the camp of the Marquis of Hastings, in Nov. 1817, not long after the first appearance of the great epidemic in the delta of the Ganges. The same idea is naturally suggested by both ; viz. that the cause of the malady was something altogether independent of infectious communication, and must have existed in the atmosphere.

But to return to our narrative. From Teheran it seems to have

spread in two different directions ; one to the S. W., in the line of Ispahan, Shiraz, and Bagdad (which suffered most severely) ; and the other towards the N. W., in the line of Tauris or Tabreez. It was about the end of September that it reached this city, where upwards of 6000 perished in the course of a few weeks. The official account, from which these particulars are derived, expressly states that the pestilence was extremely irregular and capricious in its visitations ; not always following the chief roads or principal lines of communication, but at times passing over wide districts without any traces of its presence, and breaking out at points far remote from where it had been chiefly prevailing. Not unfrequently however, the places, spared for a time, were subsequently visited, although no change had taken place in the intercommunications all the while.

At the time that Tabreez was suffering severely, the disease existed also at Reschd and other towns along the southern shores of the Caspian ; while, in many of the towns further to the westward and northward, there was much prevailing sickness in the form of dysentery, diarrhœa, and other intestinal affections. The same thing had been observed at Teheran, and at most other places in Persia, for weeks and even months before the outbreak of the pestilence in them. The bearing of this fact upon the main argument of our discourse will be afterwards more fully pointed out. In the middle or towards the end of October, a few cases of cholera were observed at Salian and Lankeran, frontier Trans-caucasian towns of Russia where the disease had first shewn itself in 1830, and about the same time at Khoi, Makan, and Bajasid in Armenia. Erivan and Tiflis were as yet free. In the south, it had extended from Bussorah to Mousul and Diarbekir on the Tigris, thus threatening an invasion of Syria in that direction. In December it was at Mecca, where it seems to have raged with very great violence, being supposed to have been conveyed thither by the pilgrims from Bagdad. Early in the present year, it appeared to the west of the Caucasus, and committed great ravages in the Russian army acting against the Circassians. At first it was believed that the measures, that had been adopted by the Government of the Czar, had proved successful in preventing the introduction of the pestilence ; but these

vain hopes soon proved to be fallacious. By the middle of May, it was at Tiflis and also at Astrakan at the mouth of the Volga; and where it reached its greatest intensity about the end of July. The towns of Kars and Kutais also, lying westward of Erivan and Tiflis, with many of the surrounding villages, were attacked about the same time. In August it broke out at Batoum on the eastern shore of the Black Sea, and soon afterwards at Erzeroum and Trebizonde, to the southward; reaching the last-named city about the 9th of September. Shortly before this time, it had appeared at Taganrog, Kertsch, Mariopol and other towns on the Sea of Azoff, and near the mouth of the Don; subsequently spreading in a northerly direction towards the more inland provinces of Charcow, Kiev, &c. Again, were all the most stringent preventive measures found to be utterly ineffectual in arresting, or even in slackening, the progress of the disease. By the Russian official reports in the middle of September, we learned that it was gradually spreading more and more into the heart of the empire, by two distinct lines; one more northerly and along the course of the Volga towards Saratoff, Tamboff, Kasan, Toulou, and Moscow; and the other from the north shores of the Black Sea along the lines of the Don and Dnieper, and their numerous branches. The general direction of the epidemic has been north-westward; and it has been remarked that the route, followed in the present year, has been very nearly that along which the 'disease-producing something' travelled in 1831. On the last day of September, it appeared at Moscow, and about the same time at Odessa and at Perecop on the north-western shores of the Black Sea, having previously ceased, or nearly so, at Taganrog, Mariopol, and other parts to the eastward. In the middle of October, we were told by official returns that, without counting Georgia, the Caucasus, and the country of the Cossacks of the Black Sea, the disease existed with greater or less severity in sixteen different governments of the Russian empire. At the same time it was announced that it had again broken out in some parts of the north of Persia, as Tabreez, Khoi, &c., and also at Bagdad.

In the second week of November, the St. Petersburg Gazette stated that "the most western points the cholera has yet reached,

are the town of Alexandrof in the government of Kherson, and the district of Olgapol in Podolia," which is not above thirty miles from the Austrian frontier. To the northward, it had been travelling from Moscow to Novgorod in the direction of the capital, and also in a course nearly due west to Dwinaberg, at a very little distance from Riga, and within 40 miles of the Prussian territory. A letter from Vienna of the 20th ult. announced that some cases had occurred in the circle of Tarnapol in Galicia. Besides the places already enumerated, there have been various reports of solitary cases having been observed at Cracow, Kiel in Homberg, Paris and even in this metropolis. I shall presently have occasion to refer to these precursory indications of a migratory disease on the wing.

The present epidemic, it may be remarked, has exhibited in different places not only a marked difference in point of malignity, but also a considerable diversity of character. Sometimes the virulence of the morbid poison was so intense as to prostrate the powers of life from the very first, and death has ensued in the course of a few hours. Such was the case, as we have seen, at Teheran at first. At other times and in other places in the East, the symptoms were much less alarming and fatal, consisting chiefly in vomiting and severe cramps. Occasionally the disease appeared under the somewhat unusual type of a bloody flux, so that the resident medical men hesitated to regard the cases as examples of the pestilence; but, as the other characteristic symptoms were present, and as the disease was prevailing in the place at the time, there can be no reasonable doubt as to the identity of the two affections. With respect to the actual mortality in different places, our information is far from being at all trustworthy: on the whole, it is certainly less than on the former visitation of the pestilence. I shall afterwards give a few data, when I come to mention the relative mortality, or average amount of deaths to the number of persons attacked: this will be most usefully done in my remarks on the results of medical treatment upon the disease.

So much then for the history of the two great migratory epidemics of Asiatic Cholera. Before proceeding to discuss the question as to the probable cause of their migrations, or, in other

words, the mode in which their diffusion has been effected, it will not, I think, be unprofitable to enquire if there has been any other epidemic disease which, in the length and breadth of its journeyings, has at all resembled the oriental pestilence of the present century ; for surely it is not unreasonable to suppose that, if a well-marked analogy can be shewn to exist between the geographical course and distribution of two distinct and independent morbid agencies, there may be a considerable similarity as to the manner in which their diffusion has taken place. Now there is unquestionably no small degree of resemblance between the career of some invasions of the Influenza and those two of the Cholera described above ; and as, besides this feature of resemblance, there seems to be a sort of consecutive affinity (if I may use an expression the meaning of which will immediately appear) between the two diseases, the following short narrative of the Influenza may not be unacceptable to the reader.

Although there is good reason to believe that Epidemic Catarrh (for that is the more ancient and much more correct appellation of the disease) must have been known before the 16th century, there is no accurate description of any wide-spread prevalence of it in Europe until we come to the year 1510. Subsequent visitations took place in 1557—1580—1658, described by our countryman, Willis—1675, described by Sydenham and Etmuller—1729-30—1733, described by Huxham—1762, of which we have an excellent account by Sir George Baker—1775, when the disease first received from the Italians the name of *Influenza*, from the atmospheric morbid influence supposed to give it birth—1782—1803—1831—also in 1833 and 1837, “ the two most severe visitations,” says a distinguished writer, Dr. Copland, “ in this country upon record, and especially in London.” There have been many more invasions of the disease than have been now enumerated ; but these are certainly the most conspicuous, alike by the great extent of their range, and the accuracy with which their history has been recorded. To give the reader an idea how wide has been the diffusion of some of these visitations of Epidemic Catarrh, we shall take that of 1782. “ It is reported to have broken out in September 1780, and to have become very general in the crew of the *Atlas* East Indiaman, whilst that ship

was sailing from Malacca to Canton. When the ship left Malacca, there was no epidemic disease in the place; when it arrived at Canton, it was found that, at the very time when they had the Influenza on board the *Atlas* in the China seas, it had raged at Canton with as much violence as it did in London in June 1782, and with the very same symptoms. In October and November 1781, it appeared in the East Indies, and was said to have attacked the British army while it was besieging Negapatam in November 1781. Its progress is stated by Webster to have been from Siberia and Tartary westward. At Moseow it prevailed in December 1781; at Petersburg in February 1782; and it was traced to Tobolski. It was in Denmark in the latter end of April. From the shores of the Baltic it spread to Holland and the Low Countries, and thence to England. London was said to be attacked sooner than the west and north; Ireland a few weeks later, and the South of Europe later still; for it prevailed in France in the months of June and July, in Italy in July and August, and in Portugal and Spain in August and September; seldom continuing longer than six weeks in any place.”*

Who that reads this account but must be at once reminded of the route pursued by the Cholera, that overspread Europe 17 years ago? Here, then, we have a remarkably analogous instance of an epidemic disease—which, be it remembered, is admitted by all medical writers without exception, most rarely, if ever, to exhibit infectious properties—originating in the East, and progressively spreading from region to region over the entire extent of the Asiatic and European continents. Nay, it was afterwards traced to have extended to the New World, almost every country of which, including the West India islands, seems to have felt the mildew breath of the disease. It has been said, by some zealous advocates of infection upon all occasions, that a very marked difference exists between Epidemic Catarrh and Epidemic Cholera; inasmuch as the former, they say, generally breaks out in different and often remote countries about the same period of time, whereas the latter advances from one place to another in a certain definite tract, which is almost always that of the chief

* Cyclopædia of Practical Medicine. Art. *Influenza*, by Dr. Hancock.

routes of intercourse. But the first of these positions is surely not in strict accordance with facts. No one will deny that, in certain seasons, the Influenza has been observed to appear over a very wide extent of region *at once*, just as we have shewn to be the case with some of the outbreaks of the Cholera;—a circumstance that is of course quite inconsistent with the idea of infectious transmission from person to person, and which can only be reasonably accounted for on the supposition of there being a diffused atmospheric malaria. But then it is equally true that, in other seasons, the course of the former disease has been far more gradual and progressive. Such was the case with the epidemic already described, and still more strikingly so with that of 1803, of which fortunately we have a very exact account, in consequence of the attention of numerous medical men, both in this country and on the Continent, being at that time specially directed to the very subject of its geographical diffusion. “This epidemic,” says Dr. Hancock, “was observed at Paris and in other parts of France, and in Holland, some weeks before it appeared in London; and (according to the testimony of Dr. Bardsley) the same length of time was occupied in its progress from the metropolis to Manchester. Its course seemed to be from S. to N. It was in Cork and Dublin, before it reached the north of Ireland.

* * * * * It was observed to be epidemic in Sussex, and in some of the counties in the S. W. as early as February; in Shropshire, Nottinghamshire, &c. in March; in Yorkshire and Lancashire in April; and at Sunderland in May.” The course of the severe epidemic of 1836-7 is equally instructive in this point of view. It appeared in Russia, Sweden, and Denmark in December 1836. The first cases in London occurred in the first week of January 1837. It appeared in Lancashire, Cheshire, Gloucestershire and the South-western counties from a week to a fortnight later than in the metropolis. In the beginning of February it was felt at Paris, and a few weeks subsequently in the north of Spain, and also at Lisbon. It reached Madrid about the end of March. In Malta, it shewed itself about the 1st of June. It is a remarkable circumstance that an epidemic influenza, having all the characters of the disease of the northern hemisphere, prevailed at Sydney and the Cape of Good Hope in

the latter part of 1836. Need a word be said, after these simple statements, as to the occasionally slow and gradual migratory course of the disease?

A page or two back, I gave as a reason, for selecting Influenza as an analogue, in the mode of its wide-spread diffusion, to Epidemic Cholera, that there seems to be a sort of consecutive affinity or mutual connection between catarrhal and choleroïd forms of disease. At all events, they have certainly, on very many occasions, been observed to prevail about the same period of time, or the one very soon after the other; as if the same constitution, or general condition, of the atmosphere were favourable to the development of both. Visitations of the Influenza have indeed been found to precede the invasion of other epidemic malignant diseases as well as that of Cholera; but of course I shall confine my remarks at present exclusively to the latter. Without going further back than the age of Huxham, we find that he alludes to the unusual prevalence of diarrhœa and severe vomitings and purgings in the summer and autumn of 1733, after the Influenza in the spring of that year. He has also described an epidemic dysentery, which prevailed both before and after the Influenza of 1743. The same was the case in 1762. In 1803, the Influenza was followed in this country by a low typhoid fever in some places, and in others by such severe gastric irritation, that Dr. Bertram, a most intelligent physician of Hull, was led to make the very curious observation that some of the attacks of the Influenza nearly resembled cholera morbus, expressing at the same time his "firm conviction of the two diseases being different types of the same disorder, and occasioned by the same cause." We need scarcely remind the reader that the Epidemic Cholera in 1831-2 was, in this as well as in several countries on the continent, preceded and followed by visitations of the Influenza; and the year 1837 was rendered remarkable not only by another very severe invasion of the same malady, but also by a partial return of the oriental pestilence in several parts of Europe. Both Dr. Hancock and Dr. Hecker* have made an emphatic allusion to the striking concomitance of the two diseases. The former, writing in 1832,

* The Epidemics of the Middle Ages. Translated from the German by Dr. Babington. London, 1844.

states that "it (the Influenza) has proved to be a true herald of the Epidemic Cholera in many places;" and the latter says—"The Influenza of 1831 was immediately followed by the Indian Cholera; and scarcely had this, after its revival in eastern and central Europe, vanished, when the Influenza of 1833 appeared." He then mentions the co-existence of the two in 1837. The experience of the present year will be found to afford confirmation of the same fact. Not to mention the unusual prevalence of low fever, diarrhœa and other gastro-intestinal affections, in very many countries on the continent as well as in our own land—a subject to which we shall presently advert more particularly—it is well known that, during the last and present months (November and December), there has been a great deal of Influenza in its varied forms, both among ourselves and in different districts abroad. For example, it was only the other day that it was stated in the public newspapers, that it was so general in Copenhagen and other parts of Denmark that scarcely a person had escaped. At the same time, several towns in the south of France were suffering severely from it. In Marseilles alone more than one-half the population was affected. In Paris, too, the *grippe* (as the French call the disease) has been unusually prevalent. I need not say how universal it has been over London, and in many other parts of Great Britain.

After this brief sketch of a disease whose history, in more respects than one, presents a striking analogy to that with which we are more immediately concerned, the reader will, I trust, be better enabled to follow me in the examination of the very important question—How is the epidemic cholera conveyed from one part or region of the world to another? And here I cannot but remark *in limine* that very much of the error and misconception, which have prevailed on this subject, has arisen from the contracted and unwise manner in which it has been looked at. It has been far too generally supposed that there can be only two views of the question under consideration, and that one alone of these can be right, the other being consequently wrong;—either that the disease is infectious,* and therefore that its diffusion is owing to its being

* I need scarcely say that Cholera is not *contagious*—using this word in its proper sense of "communicable by contact"—and that scarcely any one now holds the extravagant notion of its ever being transmitted by *fomites*.

transmitted from one person or body of persons to another; or that it is not infectious, and therefore that its spreading must be due to some other agency. Hence has arisen the division of medical men into infectionists and non-infectionists, as if there was necessarily a broad and well-marked line of demarcation between the opinions of the two parties. I am not speaking, be it remembered, of the advice founded upon these opinions, but simply of the opinions themselves, as a subject of philosophical enquiry. Now, is it not the case that a disease, although not primarily or essentially infectious, may acquire this quality under certain circumstances and in peculiar conditions? Is it not admitted by almost every medical man in the present day that Erysipelas and Dysentery, for example, are occasionally liable to become communicable in this manner?—and yet no one would dream of making infection a necessary attribute of either of these diseases.

In my remarks on the Influenza, I have said that it is scarcely, if at all, infectious. That it sometimes appears to be so, cannot be disputed; for it has been over and over again observed that, when a person labouring under this disease has entered a house as yet free from it, the inmates have become affected before the epidemic had fairly manifested itself among the neighbours. But then, as Dr. Copland* very justly observes, “it must be conceded that this infection was a very subordinate cause to that upon which the epidemic principally depended, and that it was merely a concurrent and contingent circumstance in the diffusion of the complaint.” To the same effect, Dr. Hancock, another most able writer upon the subject, says:—“Upon the whole, it would appear that some general cause, if not originating, at least subsisting, in the atmosphere and depending upon its changes, progressive also in its movements from place to place and from country to country, gives rise to the disease; but that it is probable that a *limited propagation also takes place by personal intercourse*, under the influence and during the continuance of the epidemic constitution.”†

We thus see, on the one hand, that a malady not originally and

* Dictionary of Practical Medicine. Art. *Influenza*.

† Cyclopædia of Practical Medicine, *loc. cit.*

necessarily infectious may become so under certain unsalutary circumstances; and, on the other hand, that infection may act an occasional and very subordinate part in the diffusion of an epidemic which is recognised by all writers, without exception, to depend upon a certain (unknown indeed) atmospheric malaria. Ought not these two great facts to be steadily borne in mind, when we undertake to discuss the question as to the mode in which the Asiatic Cholera has spread over the world? It is not enough to be able to adduce a few cases where the disease seemed to have been communicated from person to person, or conveyed from place to place. This may have been the case; I am not either willing or careful to contradict the statement; for it certainly is far from being improbable that human communication has, in a degree, although a very partial one, had something to do with the dispersion of the disease;—perhaps in a manner not altogether dissimilar from that in which the seeds of certain plants, although doubtless scattered over the wide surface of the earth, are universally found to follow the footsteps of man wherever he settles. The admission that man, the recipient and victim of the morbid miasm, may be made a subordinate agent in its dissemination, goes very little way to settle the main point at issue; for it is obvious that all the while the atmosphere may be the grand channel and medium by which it is diffused; and it would be quite as reasonable to build a general argument in a great medical question upon a few isolated and irregular examples, as for a pilot to judge of the wind by the mere vane on the vessel's side, without ever lifting his eye to watch the course and aspect of the clouds; or for one engaged in surveying a line of coast to mark the eddies along the shore, and neglect to trace the currents of the ocean stream. Yet, has not such been too often the case with many medical writers on the subject of our present enquiry? Having witnessed one, two, or more instances which, to them, seemed to be unequivocally infectious, they have forthwith sought to establish a general conclusion, and tried to make out that personal transmission has been the great, if not the only, agent in the dissemination of the disease. This idea once adopted, the most recalcitrant facts have been tortured into submission, while others, which could neither be gainsaid nor resisted, have been

either slurred over or altogether concealed ; it being perfectly obvious to every one that, if the pestilence could spread itself in other ways besides, and independent of, personal communication, all preventive measures based upon this principle must be utterly nugatory.

I need scarcely say that it would be quite unprofitable to enter upon any discussion of the innumerable arguments *pro* and *con*, derivable from the consideration of individual cases or isolated sets of cases, that have been adduced on the opposite sides of the question. The very same facts have not unfrequently been brought forward in favour of opposite opinions. It can, therefore, be of no use to reproduce the multitudinous assertions, negations, re-assertions and re-negations, which have at different times been made, and whose effect has only been to bewilder and confound the reader, more especially if he be an unprofessional one. Such labour moreover is surely not necessary in the present day, as it will not be difficult to come near the truth in a much simpler and more conclusive way. And first, I would remark that even the most ardent advocates for the infectiousness of Cholera admit that the disease, prior to 1817, did not exhibit this character. Does not this circumstance alone suggest the unlikelihood of its subsequent diffusion being attributable to a cause or agency not previously in operation ? It has, indeed, been just now admitted that a disease may, under certain circumstances, acquire infectious properties which it did not possess before ; but then the nature of these circumstances is universally such as to create that vitiated state of atmosphere which, it is well known, is always liable to engender Typhus fever ; viz. whenever a multitude of human beings are congregated together in a confined ill-ventilated space, and especially when poverty, filth, and mental wretchedness are present at the same time. Very different from all this has been the history of the rise and progress of the Gangetic pestilence, since it burst forth in 1817. How or whence it arose we cannot tell. Of its immediate or exciting causes we know just about as little as we do respecting the origin of that blight which, during the last two years, has told so heavily upon our nation's welfare. Nor can I pass over this allusion without a word of comment ; for, there is anything (as indeed has been already remarked in a

previous page) but a forced analogy between the epidemics of the two kingdoms of animated nature; and, if I am not much mistaken, there would be nearly as much wisdom in seeking to keep out the one as the other, by any artificial means of attempted prevention. Few themes would be more interesting, perhaps instructive also, than an exact and accurate history of the geographical distribution of wide-spread blights and mildews in the vegetable world. But this is a subject of which I am wholly ignorant. I may merely mention that, for several years prior to the outbreak of the potatoe-disease among us two years ago, it had been observed, in a partial degree, in different quarters of the globe; as in several parts of Germany, in the United States, and even in the Southern Hemisphere, at the Cape of Good Hope, and elsewhere. Now, when we see such indubitable evidence of the migratory course of the pestiferous *something* (let us call it with the forefathers of our profession *τι θειον*, *quid divinum*, as a reverential expression of our ignorance), which produces a wide-spread and desolating epidemic in the vegetable kingdom, why should we hesitate in admitting the existence of a similar, I do not say an identical, cause in the case of epidemic diseases in the animal one? The cases are very strictly analogous in many points of view, which want of space alone prevents me from setting forth at large.

But there is one topic, mixed up though it necessarily be with a good deal of hypothetical speculation, to which a passing allusion may not unprofitably be made. It is well known that many sorts of blight among plants are unquestionably owing to the existence of swarms of the minutest insect tribes, which at particular times and in certain localities become developed, and spread over a large portion of the globe, sometimes irregularly and diffused, at other times along certain tracts which can be distinctly defined. Now, why may not some epidemic diseases, it has been very reasonably argued, in the animal kingdom be owing to a similar agency? There is certainly much to warrant the idea; and, at all events, it explains, better than any other hypothesis, many of the phenomena of the moving course of such maladies as the Cholera and the Influenza.*

* Most professional readers are doubtless acquainted with the beautiful

But, without pursuing this very interesting subject, incapable as it is of direct proof, I have now to solicit the reader's attention to one or two recognised and well-established phenomena in the history of the former of these diseases, as they seem to me to afford almost infallible evidence that its producing cause is present in the atmosphere, and is susceptible of aerial transmission, quite independently of all human communication. It has been mentioned, in our short narrative of the present epidemic, that the countries in advance of its course, or, in other words, westward and somewhat northward of the line which it has followed, have almost invariably suffered with a mild and mitigated form of the disease for one, two, or three weeks, or even longer, before its appearance in its full malignity. That such is the fact is placed beyond all doubt; and it is not likely to be disputed by any one, whatever opinion he may hold as to its cause. It will be remembered that this was a topic in the history of the epidemic of 1831-2, which attracted much attention both in this country and elsewhere; nor can it be too attentively considered, seeing that it has very important bearings in a practical as well as in a speculative point of view. It was particularly dwelt upon by Dr. Brown, Dr. Ogden, and other medical men in Sunderland and elsewhere. For two or three months, at least, before the occurrence of the first officially-declared case of the pestilence in that town, there had been a marked prevalence of unusually severe stomach and bowel complaints. Thus Dr. Brown tells us that "ordinary cholera was most unusually prevalent; whilst cases of disease, certainly not distinguishable by symptoms from the epidemic, occurred on the 5th, 8th, 14th, and 27th of August (two months, it will be observed before the declared importation of the foreign disease); and cholera continued to be very prevalent and severe throughout September. The cases which occurred in August were not matter of secrecy, but even the subject of conversation among the medical men of the place; and the writer frequently made the remark, that we were partakers of an inferior degree of the epidemic influence which existed on the Continent. But certainly, at the time, he did not

(nor does he yet) ascribe them to imported contagion; nor did he then conceive that we had, properly speaking, the epidemic among us.”*

Now the very same thing occurred in many other parts of the country; insomuch that it was often impossible to determine the exact date on which the precursory *choleroïd* or *cholerine* (as they were sometimes called) cases ceased, and the real disease displayed itself. In Paris too, and again in Canada and the United States, a similar sequence of phenomena was observed; nor was it less remarkable in the case of the pestilential invasion of the Mauritius in 1819, about which so many erroneous statements have been made, and which, when impartially investigated, will be found to afford a very strong argument against the importation of the disease by infection.†

What was observed of the epidemic of 1831-2 is equally characteristic of that which is now threatening our shores. Allusion has been made in a preceding page to the sickly state, from the prevalence of bowel complaints, &c., of the towns on the Caucasian frontier, ere the pestilence had reached them, and while it was raging at Tabreez, Reschid, and other towns in the north-western parts of Persia; and in what other light are we to regard those not unfrequent announcements of late, in the public newspapers, of supposed cases of the disease having manifested themselves at Riga, in Malta, at Vienna, Kiel, and even in Paris, and among ourselves, save and except as indicating the advancing approach of the coming storm? I have already remarked that, in almost every country of Europe, there has been, for some months past, a more than ordinary prevalence of diarrhœa and other affections of the bowels, associated very frequently with symptoms of a typhoid character. All this too surely announces an unhealthy state or diathesis of the atmosphere. Nor can I see how the force of the argument now adduced—I mean the occurrence of a mild and modified form of the malady before the

* *Cyclopædia of Practical Medicine*, vol i., p. 399.

† The reader will find an authentic statement of the circumstances attending this visitation of the Isle of France in the *Medico-Chirurgical Review* for April 1847.

pestilence fairly declares itself—can be evaded by those who regard personal infection as the principal agent in the dissemination of the Cholera, and who consequently recommend prohibitory measures in the hope of arresting its progress. And here it may be mentioned, as an additional feature of resemblance in the two epidemic diseases between which I have sought to draw a parallel, that, in visitations of the Influenza, it is by no means unfrequent to meet with scattered cases for days and even weeks before its full and decided invasion ; and it is also a curious fact that it has, on several occasions, been observed to exist among many of the domestic animals for a considerable time previous to its outbreak among the human species.

There is another circumstance, already illustrated in the course of these observations by more than one striking example, which is utterly incompatible with the idea of infection playing the chief part in the diffusion of the Cholera ; and that is the sudden seizure of hundreds of persons in a place on one and the same day. How can any one seek to reconcile such an occurrence with the notion of the disease being communicated from one person to another, and of its proceeding, as it were, step by step, until it has overspread a space of several miles in circumference within 24 or 36 hours ? Yet this most improbable opinion has actually been held and stoutly maintained ; but only by those who, having once adopted a favourite doctrine, are determined to subject all facts, however rebellious, to its Procrustean requirements. In connexion, too, with the present argument, and as affording irrefragable evidence of there being a malarious condition of the atmosphere during the existence of Epidemic Cholera in a place, it may be also mentioned that almost all the inhabitants of a town or district often experience its morbid effects in some degree or another ; just as we know to be so generally the case during the presence of Influenza : very few persons escape it altogether. In the one instance there is a marked tendency to irritability of stomach and to relaxation of the bowels, or to crampy twitchings in different parts of the body, these symptoms being especially apt to supervene upon any impropriety of diet ; while in the other, slight catarrh, headache, and unusual lassitude and general debility, are pretty sure signs of the person having

come within the influence of the miasmatic agency, whose power is always aggravated not a little by exposure to whatever is liable to produce common catarrh. Other diseases too, which may happen to prevail in a place at the same time, very generally exhibit something of the character or impress of the predominant epidemic. This character has been much dwelt upon by Sydenham and others of the old school; and the truthfulness of their observations has been abundantly confirmed in the history both of the Cholera and of the Influenza.

When, in addition to the general considerations now submitted to the attention of the reader, it is remembered that nine-tenths, I might rather say 99 out of every 100, of the medical men in India entirely reject the idea of the disease being propagated by infection,—that it has over and over again broken out in places remote from, and having no direct communication with, those where it chiefly prevailed,—that the attendants upon the sick are not a whit more liable to be attacked than others, a fact quite as true in Europe and America as in the East Indies,—that the pestilence every now and then unexpectedly bursts out in some district previously healthy with amazing fury, sweeps off its thousands, and then, in the course of a week or so, ceases altogether, sometimes after a thunder-storm, at other times without any appreciable cause,—that in its migratory course it has frequently appeared in numerous points of a large and scattered city at the very same time, while, in other instances, the distance of a few hundred yards has made all the difference between a region of almost inevitable death and one of complete exemption and even of health, notwithstanding that uninterrupted communication existed all the while between the two;—and when, too, we call to mind the indisputable fact that, upon no one solitary occasion, have quarantine and other preventive measures of a like nature, however stringently and perseveringly employed, ever yet succeeded in keeping out the disease from any country;—that the Russian Government, in 1831, having found their utter inefficacy, speedily abandoned all attempts of the sort,—that the Austrian Emperor formally declared that, “he had committed an error in adopting the vexatious and worse than useless quarantine and cordon regulations against cholera,” frankly ad-

mitting that he did so before the nature of the disease was properly understood,*—that Prussia, too, having in vain had recourse to the same expedients, was forced to give them up,—that, in our own country, the Government intimated, in the Speech delivered from the Throne, if not their positive disbelief, at least their emphatic ineredulity as to the importation of the disease from the continent by shipping or otherwise ;—that one of the latest acts of the Central Board of Health in London was to announce that cholera patients should be as freely admitted into our public hospitals as any other sick,—that the Board of Health in Ireland candidly admitted that “ they were not able to trace the disease to any communication by which it might have been introduced into the neighbourhood of Dublin,”—that the leading physicians and surgeons in Paris drew up a formal memorial, declaring their disbelief in its infectiousness, and that the French Academy of Medicine adopted and confirmed this opinion,—that the Government of the United States, too, at first tried the effects of quarantine protection, but quickly abandoned it, the chief medical men in New York, Philadelphia, and other leading cities of the Union having pronounced against it;—when, besides these numerous and forcible reasons, we think of the singular exemption of some countries in Europe from the disease for one, two, and even four years after the general visitation in 1831-2, and even after the pestilence had crossed the Atlantic and made its power to be felt over nearly the entire extent of the New World ; and all this, too, certainly not from any unusual stringency in the quarantine laws of those countries, but from some hidden cause quite beyond our ken,—can any one, after impartially thinking upon all these things, reasonably entertain a doubt as to the utter inadequacy of personal infection to account for the career of Cholera, or hold to the folly and wickedness of ever again attempting to arrest its march by measures which have been proved to be wholly valueless ?] As well might we ascribe the blasting of our crops to direct trans-

* *Vide* a series of admirable “ Letters on the Cholera Morbus,” by Dr. Gillkrest, Inspector General of Army Hospitals, &c., London 1831. Dr. G. was unquestionably the first in this country to proclaim the utter inutility of Quarantine to arrest the disease.

mission of the morbid cause from plant to plant—although unquestionably some forms of blight are capable of being propagated by immediate contact of the healthy with the diseased—and seek to protect them from the unseen foe by building a lofty wall around the threatened fields, as hope to keep out a disease like the epidemic Cholera or Influenza by sanitary cordons or quarantine restrictions. Truly has it been remarked by one of the most philosophic medical writers of the present age, when alluding to the Plague of Athens, that “we know by recent experience that these great scourges cannot be turned aside by any human appliances, and that the fires then lighted in that city could not have had more power against the epidemic which, brought from a distance, desolated its inhabitants, than what contemporaneous medicine has been able to employ against the pestilence from the banks of the Ganges. Whenever the power of arresting such ravages has been attributed to medical art, the statement is necessarily fallacious.”* It would be easy to confirm the perfect truth of this remark by the concurrent testimony of a host of authorities. But I have no wish to rest my case upon so fallible a foundation as this, well knowing that my opponents are not without names of considerable repute upon their side. With the exception, therefore, of a very brief allusion to the published evidence of two of the ablest writers of this adverse party, I may confidently leave to each reader to draw for himself what certainly seems to me to be the only legitimate conclusion from the facts and reasonings, which have been submitted to his consideration. Dr. Copland, after a most elaborate attempt to espouse the doctrine of the ultra-infectionists, feels himself compelled, by the strong force of past experience, to acknowledge that, “where a strict quarantine, or sanitary measures calculated to confine the pestilence to the place of its introduction, cannot be maintained, the mischief resulting from the attempt will be greater than the benefits which will arise to the community;”† and Mr. Orton, who belongs to the same side of the question, yet very candidly admits that “there is reason to believe that the virus which propagates this disease is of a very subtle or volatile

* *Ceuvres Completes d'Hippocrate.* Par E. Littré. Vol. I., p. 42.

† *Dictionary of Practical Medicine.* Vol. III., p. 241.

nature, and is readily conveyed by the atmosphere; whence it arises that there is little, if any, increase of danger from the most intimate communication with the sick during the prevalence of the disease, above that which attends the common intercourse of society."* Several other passages from this gentleman's work might be quoted to shew that, although an avowed infectionist, he considers that no quarantine, however stringent, will ever serve to keep out the pestilence. Truly, with such an opponent we are willing to overlook a few minor differences of opinion, and may surely claim to enlist him among the number of our most useful friends.

Much stress has been laid by the ultra-infectionists upon the two circumstances, that the Cholera has often—certainly not always, as has been pretended—followed the chief routes or lines of human intercourse between points at a distance from each other, and that it has, on several occasions, first manifested itself in a place among persons recently arrived from an infected locality. I have already alluded to the first of these objections, and need not now recur to it; for unquestionably far too much importance has been attached to a circumstance which, even if it was universally true, proves but little in determining the main question. And, with respect to the second, I may merely remind the reader that the very same thing has been observed, over and over again, in the case of the Influenza, as well as of other epidemic disorders; and moreover that, in almost every instance which has been quoted in reference to the Cholera, the disease was, so to speak, at the very door,—nay, on some occasions, had already entered—where the unlucky individuals first attacked are supposed to have introduced the morbid poison. Such was memorably the case with the alleged importation of the malady into the Mauritius in 1819; and the history of the European visitation of 1831-2 so teems with proofs to the same effect that, even if space permitted, it would be almost useless to occupy the time of the reader with particular details. Indeed, my only reason for alluding to the matter now, is to direct his attention for a moment to the striking contrast which the migration or

* An Essay on the Epidemic Cholera. 2nd Edition. London, 1831, p. 313.

mode of diffusion of a disease truly infectious presents to that of the pestilence now under consideration. Take, for example, Typhus fever, of whose wide-spread prevalence there have been such melancholy proofs in this country, and in our American colonies, during the course of the present year. No one can for an instant doubt but that the dissemination of this too-certain offspring of famine and wretchedness has been mainly owing to the vast numbers of Irish poor who have scattered themselves in all directions, carrying the seeds of their self-engendered disease wherever they went. So surely has this been the case, that the track of their dispersion over the length and breadth of the land might be as readily followed by the outbreak of the fever, as the path of the early sower by the line of springing corn along the furrowed field in summer. Wherever a poor Irish family located itself, there inevitably did the disease—provided always there existed in the place a similar condition of insalubrity to that amid which it first arose—make its appearance; nor can it be necessary to do more than merely allude to the still more melancholy and disastrous results that occurred on board the ships, in which the infected emigrants were carried to the shores of the New World. That, in these instances, the fever was transmitted from person to person, and conveyed from country to country, it requires no argument of mine to prove. Not, indeed, but that it is endemic and indigenous—although in a much less degree—in this country as well as in Ireland; for it is well known that it will as certainly spring up in some form or another wherever human beings are congregated together in wretchedness, want, and impurity, as noxious weeds will appear in a neglected soil. But that the leavening virus was, in the majority of instances, directly introduced in the manner I have mentioned, has, alas! been too obvious to admit of any doubt. The malignancy and extent of the disease have been uniformly proportionate to the number and sickness of the emigrants that were received, coupled with the insalubrity of the place where they took up their abode; and need I add, in confirmation of the same fact, that it only required the disinfecting powers of cleanliness, of a sufficient supply of wholesome food, and free ventilation to be brought into requisition to put a stop to an evil, which

by no other means whatever can be subdued. But will any medical man say as much respecting the Epidemic Cholera, or venture to promise as sure success, either in preventing its invasion or in arresting its progress, by the adoption of like means? I trow not. And why?—because the one is the recognised and indeed infallible offspring of causes over which we may have direct controul, the other is the mysterious product of agencies beyond our ken; the laws which regulate the diffusion and fatality of the one are known, those which preside over the spread and malignancy of the other are almost altogether inscrutable; the course or career of the one may be predicted with nearly unerring certainty, while that of the other is hid in utter darkness; the one reminds us (to recur to a similitude already used) of the tares and weeds in the sluggard's garden, the other is like the blight that falls even upon the most cultivated fields; and, lastly, may we not say that the one seems to admonish man of the fearfully retributive penalty which awaits the wilful neglect of his poorer brother's welfare, while the other unmistakably proclaims to him his own powerlessness before any of those great judgments with which it may please the Almighty Ruler to visit the earth, and thus teaches him his dependence upon One that is higher than himself.

I trust that, by this time, the reader will have seen sufficient grounds to adopt with me the opinion that the producing cause of Epidemic Cholera is a virulent “something” present in the atmosphere, capable of being conveyed hither and thither, bursting forth in one place and travelling on to another, often quite independently of all human communication. If such be the case—and how the prominent circumstances of its history can be explained otherwise, I cannot understand—the inevitable inference will be that all attempts, by prohibitory and restrictive measures, to shut out the disease or arrest its progress must, at best, be vain and useless. Admirably does Mr. Farr, in the last quarterly report of the Registrar-general, give expression to this sentiment, associating with it, too, another of equal truth and importance, when he says:—“Internal sanitary arrangements, and not quarantine and sanitary lines, are the safeguards of nations” against the invasion of epidemic diseases:—an apothegm

which I have adopted as a motto to this pamphlet, and one that should be graven on the mind of every one who has a voice or interest in legislation upon the subject. Thanks to the progress of enlightened opinion, it is not requisite now-a-days, in this country, to try to convince people of the absolute necessity of adopting some means to insure greater cleanliness and a purer ventilation in the lanes and alleys of our large towns. The truth is admitted by all, although most unfortunately—ought we not rather to say, most discreditably?—it has hitherto been so imperfectly and inefficiently acted upon. As it was in the days of our forefathers, so it is with us; for, alas! very little progress has yet been made, even in this loud-boasting nineteenth century, in rectifying the horrible abuses that have so long existed among us, more especially in reference to the state of our streets, the dwellings of the poor, &c. Old “doctour Caius,” nearly 300 years ago, when admonishing his countrymen as to the best means of prevention and cure in a remarkable pestilence of that age—a pestilence, by-the-bye, which has been thought by certain writers to have been akin in some respects to the Epidemic Cholera—does not forget to remind them, in addition to personal “cleynelines, a great helpe to helthe,” to “take awaye the causes of infectiō, by dymnyng diches, auoidynge cariōs, lettyng in open aire, shunning euil mistes, not openynge or sturryinge euill brethyng places, landynge muddy and rottē groundes, burieng dede bodyes, kepyng canelles cleane, sinkes and easynge places swcat, remouyngc dongehilles, boxe and euil sauourynge thynges, enhabitynge high and open places.”* No better instructions could be given in the present day to our local boards of health, adding only a plentiful supply of fresh water, and a well-acting drain to every house. Truly, if such a system of purification were generally followed out in all our towns with persevering assiduity, there need be little cause, comparatively, for public alarm at the threatened invasion of the Cholera or any other pestilential disorder; and then would be seen, and felt too, the truthful force of another of Mr. Farr’s observations, that “a salubrious city in

* A Booke or Counsell against the Disease commonly called The Sweate or Sweatyng Sicknesse, made by Jhon Caius, Doctour in Physicke. London, 1552.

an epidemic, like a city built of stone in a conflagration, is exposed to danger and injury; but not to the same extent as the present cities of Europe, which are left without any adequate regulations for the health and security of their inhabitants." The whole history of the pestilence, which we have been considering, affords an emphatic illustration of the justness of this remark; for, as surely has Cholera always sought out and settled down upon the abodes of misery and filth in every city of Europe that has been visited by it, as the vulture-crows in the East ever congregate where the most offal and garbage are to be found. I need scarcely add that the mortality among the lower classes has invariably been a hundred, nay a thousand, fold greater, than among persons living in cleanliness and comfort.

Great then must be the responsibility upon those, who are comparatively so exempt from the ravages of the disease, to employ every means within their power to ameliorate the condition of their less fortunate brethren; and no less obligatory is it upon every well-regulated state to interpose in behalf of that class of its subjects who, whether from their own inconsiderate negligence or from the grinding oppression of hard-hearted avarice, are so often left the victims of poverty, crime, and disease. I may remark, *en passant*, that there is a tendency at the present time, even amongst men who should know better, to attach an exaggerated importance to the use of what have been very improperly called "disinfectant" agents—such as the solutions of chloride of lime, chloride of zinc, nitrate of lead, &c.—in guarding against the development and spread of pestilential diseases. These substances have, indeed, the power of correcting offensive smells, and of arresting, more or less completely, the process of putrefaction; and, as the words "infect," "infection," have often been used even by medical writers in a vague and inconstant sense, they are very frequently associated, in common parlance, with the idea of the presence of foul and putrid effluvia. An attempt was made, a few months ago, to make the public believe that, by means of one of these so-called "disinfectant" agents (the Lcdoyen fluid), not only might the foulest odours be got rid of, and the deleterious gases emitted from putrescent animal matters effectually neutralized—two very important points certainly upon many

occasions—but even the development and spread of malignant fevers and other communicable diseases might be prevented. Now, this is a great and dangerous mis-statement, and one therefore against which the unprofessional reader, more especially, requires to be put upon his guard. There is no necessary connexion between the existence of the most offensive stench and the presence of febrific miasmata; and the one nuisance may be most satisfactorily extinguished, while the other remains little, if at all, abated. Indeed, the very possession of an efficient stench-destroying agent *may* not unfrequently lead, in certain circumstances, to the very serious evil of getting rid of a temporary nuisance, while the removal of the radical mischief is wilfully overlooked or neglected. The only genuine "disinfectant" is, after this main point has been attended to, an abundant supply of fresh water and of pure air. In a sanitary point of view, as respects the diffusion of pestilential diseases, frequent ablution and free ventilation are worth all the chemical preparations in the world.

A proposal has at times been made to employ *fumigations* of Chlorine, and other active gases, with the view of destroying the aerial miasm on which a disease like Epidemic Cholera is supposed to depend; and some fond writers have even gone so far as to promise the arrest, nay even the extinguishment, of the pestilence in this way. This suggestion would scarcely deserve a comment, were it not that, unfortunately, great publicity was given to a recommendation of it, by a chemist of eminence, a month or two ago.* Could we, indeed, localize and confine the atmospheric poison to a spot, and subject it to the action of an acrid fumigation, it is not at all improbable that we might succeed in the philanthropic attempt to destroy it; but, until this problem be solved, it would be in vain, I fear, to trust to the fanciful experiment. The only use that such means as acrimonious chemical vapours are likely to have, is to necessitate a free perfusion of fresh air wherever they are employed; and then perhaps the ancient expedient of burning green wood, and similar materials, might answer nearly as well.

The consideration of the above matters leads us, by a natural

* The "Times" newspaper for October 12th.

transition, to the subject of the Treatment of the Cholera. Before proceeding, however, to particulars upon this important point, it may not be altogether unnecessary to state that, during the former invasion of the epidemic in 1831, the establishment of temporary *special* hospitals was found on experience to be not only of little service, but often positively injurious. For, besides the unnecessary alarm caused both to the patient and his friends by his being carried off to a "cholera hospital," and the false impression left upon the public mind that, if such were not done, the spreading of the pestilence would greatly increase, the very act of removing to any considerable distance a person seized with the disease often produced such a prostration of strength that he never recovered from it. A far wiser plan will unquestionably be, that patients should be treated on the spot where they are taken ill, if the attack be sudden and severe; and, as the means to be used are abundantly simple and generally within reach, prompt attention might immediately be paid, if the nearest medical practitioner were summoned without delay. Of course, on the public should fall the expense thus necessarily incurred in the case of the destitute poor; nor is this likely to be objected to, when it is considered that the very considerable outlay, formerly incurred in the erection of hospitals and so forth, may be entirely avoided. But this only *en parenthese*. I need scarcely say that, while advocating the system of immediate attendance upon the poor at their homes, in preference to the plan formerly adopted, I am not in the least insensible to the superior comforts and conveniences for appropriate treatment that can always be had in any of our established hospitals;* and that if the sick can be promptly received into them without loss of time, so much the better. All

* Of course, it is taken for granted that cholera patients would be readily admitted into all our hospitals and infirmaries, without any apprehension of spreading the disease. Indeed, medical men have, of late years, much relaxed in their fears as to receiving even persons affected with decidedly infectious fevers into the wards of a general hospital; and, at the very same time, they have begun to question the propriety of having *special* establishments for the reception of such patients. There is certainly more danger of infection spreading by congregating a number of comparatively mild cases within a limited space, than by admitting one or two malignant cases into a large well-ventilated ward where there are other invalids.

that I insist upon is the importance of medical assistance being procured as soon as possible after the setting in of the symptoms, and of the patient's strength being husbanded by all unnecessary fatigue being cautiously avoided. The loss of half an hour at the commencement of the attack may not be compensated by the persevering use of the most appropriate remedies during ten or twenty hours afterwards. And now for a brief enumeration of these remedies; only premising that the following remarks are intended to apply more especially to the early part of the cold stage of the disease, when the discharges have begun to assume a watery or serous character, the pulse is weak and faltering, and the general vital energies are much depressed.

The first thing to be done is to have the patient at once stripped and enveloped in warm blankets. The application of bottles of hot water, bags of hot salt or bran to the feet, between the legs, and along the course of the spine, will always be useful in increasing the warmth of the general surface. This is a point of great importance; as the cutaneous circulation is all but arrested, and the blood is consequently accumulated in the internal viscera. The sympathy between the skin and the alimentary canal is known to every one by experience. Cold feet will often cause severe pain in the stomach and bowels; and, on the other hand, indigestion and diarrhoea are almost invariably attended with a chilly state of the surface. The removal of the exciting cause in either case will speedily relieve, or altogether dissipate, the superinduced symptoms. How important then it must be to act upon this therapeutic principle in a disease like Cholera, in which the whole body is marbly cold, and the gastrointestinal canal is so strangely and violently perturbed!

This preliminary point being attended to, what is the physician to do next? I have no hesitation in recommending—and the recommendation is based not only upon long meditation upon the subject, but on the results of some experience during the epidemic of 1832 in London—the immediate exhibition of *saline emetics*, as was first (I believe) employed on a large scale by Dr. Searle at Warsaw. Without going so far as to say that the incessant vomiting, which generally constitutes so distressing a symptom of the disease, is a medicative effort of the system

either to relieve itself of offending matters, or to rally the stagnant state of the circulation, I have not a shadow of doubt that the practice, so often pursued, of seeking to arrest it at once by the exhibition of large doses of opium and other narcotico-astringent remedies, has been the cause of much disappointment, and not unfrequently too of very serious mischief. And here let me remind my professional brethren that, in very many instances of spontaneous vomiting, by far the best remedy is neither opium, prussic acid, creosote, effervescing draughts, nor any other of the usually-prescribed means, but a simple emetic. And why?—Because the morbid condition is often kept up in consequence of the contractions of the stomach (and other co-operating muscles) being only partial and imperfect—ineffective, in short, to produce what Nature is seeking to attain. When once the organ is made to contract vigorously and effectually under the operation of an emetic, its inverted action ceases, and the distressing symptom is relieved. But, whatever explanation we choose to adopt, the truth of the fact cannot be gainsaid: daily experience affords the proof. And what holds good in diseases of less formidable severity, is quite as applicable in the treatment of the Cholera. Indeed, the very nature or character of the vomitings in this frightful malady seems to me to point to the practice now recommended. The ever-recurring discharge of the enormous quantities of watery fluid from the stomach looks more like the gushings out from a vessel overflowing to fulness, than the forcible expulsion of a living organ's contents by the contraction of its parietes. There is little or no retching or straining, as in ordinary vomiting; the act is one rather of simple disgorgement than of strong and convulsive contraction. The curative indication therefore is to induce a more energetic action of the stomach, diaphragm, and other muscular parts which co-operate in ordinary vomiting; and in no way can this object be so effectually accomplished as by the exhibition of a stimulant emetic. Common salt is at once the most convenient and the most useful one that can be employed. Let from a dessert to a table-spoonful or more be dissolved in a tumbler-full of water, and drank off immediately; and let the dose be repeated again and again at short intervals, if it be speedily rejected without

having induced the forcible contractions we desire. When this object is once fully attained, the incessant vomiting, which existed before, will, in very many cases, be found to be remarkably abated. Then is the time for the application of a stimulating *epithem* upon the abdomen, and especially over the epigastrium ; and certainly nothing is better for this purpose than that which has been so strongly recommended by Dr. Copland, viz. a large flannel, wrung nearly dry out of very hot water, and then moistened with spirits of turpentine : a portion of laudanum may be added to it at the same time. In many cases, a strong sinapism will answer very well. The relief obtained from such applications is often most decided ; not only is the irritability of the stomach sensibly quieted, but the excruciating cramps of the abdominal muscles are at the same time decidedly relieved. If, by the means now mentioned—outward warmth, saline emetics, and stimulant fomentations to the abdomen—the vomiting has become much mitigated or checked, the incessant purging also will often be found, at the same time, to have diminished. And this indeed is just what we might expect ; seeing that a diarrhoea or relaxation of the bowels may frequently be very promptly arrested by exciting vomiting, and this, too, (as has been remarked by Sydenham,) even when direct astringent and opiate medicines have failed. Here, then, is another advantage to be derived from the use of stimulant emetics ; nor are we to forget the potent effect which the violent straining, which always accompanies the act of forcible vomiting, has in equalising the general circulation, in determining the blood to the surface, often nearly exsanguine, and also in bringing on a tendency to sleep. Should the purging continue, notwithstanding the abatement or cessation of the vomiting, the indication will be to act, in reference to the one symptom, upon the same principle which guided our practice in reference to the other. The bowels should be stimulated to energetic contraction ; it is in this way only that the enormous draining from their mucous surface can be safely as well as effectually arrested. To attain this object, it will be wiser, on most occasions, to trust to enemata rather than to medicines exhibited by the mouth, in order to avoid all unnecessary distress of the irritable stomach. The injection may consist either of a strong

solution of salt, or of spirits of turpentine, mixed with gruel or any other convenient vehicle. It is doubtless well known to most medical readers, that one of the earliest and surest signs of favourable omen, in a case of Asiatic Cholera, is the appearance of any thing like bilious or fæcal matter in the dejections. Hence it is that the practice of some of the most experienced men in the East Indies has been primarily and mainly directed to this end, and undue reliance has been placed upon the administration of enormous doses of croton oil and other drastic purgatives, either alone or in combination with opium. The suppression of the biliary secretion, as well as the atonic inaction of the gall-bladder (which has in many cases been found on dissection full of bile), is however not so much the cause as one of the effects of the disease. Still it is certainly quite right that our remedies should be of such a nature as not to interfere with, or arrest, the excretion and elimination of the bile; and this, indeed, is one of the very reasons that has influenced me in so strongly recommending the early use of powerful emetics, and consequently in condemning the exhibition of large doses of opium, in the treatment of Cholera. If opium is to be employed—and that it may often serve some useful purpose is not denied—let it be almost exclusively used as an outward application, or let it be administered only in small doses, and in conjunction with other remedies.

Under very many circumstances, a mild preparation, like the *tinct. camphoræ comp.*, is greatly preferable to the stronger laudanum. It is quite true that even enormous doses of the latter, or of crude opium, have often been given without any narcotic or stupifying effects being produced; but then these have very generally been cases in which the patient speedily sank, and when the drug had little more effect upon the system than the same quantity of wine or brandy would have had. Should, however, the immediate symptoms of the disease be overcome, and the system make an effort to rally from the prostration to which it was reduced, then will the pernicious effects of the opiate treatment be very generally experienced. There is a marked tendency to cerebral oppression, and even to coma; the biliary and other intestinal discharges are not readily brought back to a healthy state; and the urinary secretion is with difficulty re-

established. But, if there was no other argument against the immoderate use of opium in the treatment of the cold stage of Cholera, the circumstance of its very general failure, in past experience, either to check the vomiting and purging or to mitigate the dreadful cramps, ought surely to induce us now to have recourse to less objectionable remedies.

Whenever the vomiting has ceased or become sensibly abated, it will be prudent to begin the administration of some preparation of mercury. From five to ten grains of *calomel*, or double this quantity of the *hydrargyrum cum cretd*, in combination with the carbonate of soda or magnesia, should be given immediately ; and the dose repeated every three, six, or ten hours, according to the circumstances of the case. *Camphor* may often be advantageously added to these powders ; or the different substances may be made up into pills with any of the warm essential oils. The effect of this treatment will be to excite the hepatic and pancreatic functions, and to induce a more healthy condition of the whole intestinal canal. The occasional administration of a stimulating enema will, at the same time, serve to bring down the vitiated matters, which, I need scarcely say, are almost always found to stand in need of evacuation after the immediate symptoms of the disease have been subdued.

To allay the intense thirst—which is often accompanied with a sense of burning heat in the region of the stomach—that is almost always present in cases of Cholera, effervescing draughts prepared with the carbonate of ammonia, soda or seltzer water, iced water, water acidulated with the sulphuric or some other mineral acid, light well-fermented beer, or, in short, whatever may be most grateful to the patient, should be given without restriction ; only cautioning him to take small quantities very often, rather than large draughts less frequently. On the whole, it is better to avoid strong and spirituous stimulants, if these simple beverages suffice ; and, in nine cases out of ten, the latter will be found to be quite as refreshing and exhilarant as the former, even when the system is in a state of great depression.

In the treatment of a disease like Cholera, the ultimate as well as the immediate effects of our remedies should always be kept in view ; and, considering the marked tendency there is to the supervention of typhoid phenomena upon the cessation of the

primary symptoms, the prudent physician will prefer the use of those means that may be fairly viewed as counter-agents rather than as provocatives of the consecutive mischief. Doubtless, the suppression of the biliary and urinary secretions, and the consequent retention in the system of effete and noxious matters, that are continually being eliminated from the blood, form one of the chief causes of this secondary Typhus; and there is good reason to believe that the tendency to its occurrence will be found to be exactly proportionate to the difficulty, or delay, with which these important functions are re-established. Of course, therefore, special attention will always be directed to this point, immediately after the subsidence of the proper choleraic stage. It is unnecessary to particularise the appropriate remedies to be employed for such a purpose. Lastly, in closing these remarks, I would again urge the necessity of husbanding the patient's strength with all possible care. Among other precautions, the patient should never be allowed to rise up, far less to leave his bed, when the calls of Nature require relief. The exhaustion, caused by the neglect of this simple rule, has, in not a few cases, proved almost instantaneously fatal.

Such are the principles and general plan of treatment, the judicious following out of which promises, in my opinion, by far the best prospect of advantage in combating the disease which we have been considering. They are not proposed as either new or peculiar; for I am well aware that each and all of the remedies enumerated have been recommended and employed by others. My chief object has been to point out and explain their mode of operation, and to give a connected view of the *when* as well as of the *wherefore* of their use;—in other words, to mark the proper time for their employment, and the indications that are sought to be fulfilled by them. There is one general observation that I would particularly press upon the attention of the reader, seeing that it is not altogether in accordance with what is frequently laid down in medical works upon the subject. It is said that the activity or potency of our remedies should be commensurate with the intensity and malignant nature of the disease we have to contend with. Acting doubtless upon this principle, some practitioners have had recourse to the most violent—might I not even

say outrageous?—remedies; such as large doses of strychnine and prussic acid, the application of the actual cautery along the spine, venæsection in the stage of collapse, not to mention the injection of enormous quantities of saline fluid into the veins. Such are not the means, I venture to affirm, which thoughtful and experienced observation will ever recommend. Promptitude in the use of simple measures is a safer guide of practice in a disease like Cholera than boldness and activity in that of energetic ones. The precept of Hippocrates should never be forgotten, that the great object of the physician or *healer* (ἰατρος), should ever be “to benefit his patient, or at least to do him no harm,” (ὠφέλῃν, ἢ μὴ βλαπτειν)—a precept of profound and most instructive import, and which cannot perhaps be more effectually impressed upon our minds than by reading the comment which Galen wrote upon it:

“There was a time when I regarded these few words as unworthy of Hippocrates; it seemed too obvious that the duty of the physician is to seek to relieve the sick, or at least not to injure them. But after having seen many celebrated practitioners justly blamed for what they had prescribed,—such as blood-letting, baths, purgatives, wine, cold water, &c.—I then understood that Hippocrates had committed the same mistakes, like many others who were his contemporaries. Since that time, I have not only deemed it necessary, in prescribing any powerful remedy, to endeavour to know to what extent the patient might probably derive relief, but I have never administered anything without taking all possible precautions not to do harm, in case the prescription might miss its end. Some physicians, like men engaged in throwing the javelin, prescribe remedies which, if they fail, are full of mischief to the patient. Beginners will, I am certain, believe, as I did myself, that the precept of Hippocrates is not worthy of him; but the more experienced, I am not less sure, will understand its full bearing; and, if ever they chance to injure their patients by the unseasonable administration of an active remedy, then will be the time more especially that they appreciate the meaning and the deep importance of the advice which Hippocrates has left to them.” Is there not some reason to suspect that the truth of the above sage advice was not recog-

nised, as it deserved, either by ourselves or by our professional brethren on the continent, during the invasion of the disease sixteen years ago ? Without easting the blame on any, it may not be unprofitable that medical men should be reminded that the ratio of mortality in our own land was nearly as high as in some countries where little or no professional assistance was to be had, and where, consequently, the malady was left to its own unopposed course. The following Table, drawn up by Dr. Merriman from official returns, too surely proclaims this humiliating truth :

	Cases.	Deaths.	Recoveries.
England	49,594	14,807	33,790
Scotland	20,202	10,650	10,549
Wales	1,436	498	938
Isle of Man.....	276	146	130
	71,508	26,101	45,407
London and its Vicinity	11,020	5,275	5,745
	82,528	31,376	51,152
Ireland, up to March 1, 1833....	54,552	21,171	33,381
	137,080	52,547	84,533

It thus appears that the ratio of mortality in the entire number of cases was about 38 per cent : being, in England (not including London) in rough numbers, 29 per cent; in Scotland, 52; in Wales 34; in the Isle of Man, 52, and in Ireland 38 per cent. In the Metropolis, it will be observed that nearly one-half of the cases proved fatal ! What the relative mortality was in other countries in Europe, it is not possible now to determine; our information upon this point being very imperfect. Perhaps we should not be far wrong in fixing it at from a third to a half. And this seems, hitherto, to have been about the ratio during the present epidemic; for, although one public journal (*Morning Chronicle*) stated, a week or two ago that, " according to a rough estimate, it is believed that nearly 100,000 persons have suffered from cholera in Russia, and that from 22 to 24,000 of these have

died," we may suspect that this calculation must be much below the mark, if we are to trust the separate reports from different parts of the empire. Of 30,000 cases, that have occurred in Astrakan, among the Cossacks of the Don, in Saratoff, Kasan, Woronesch, &c. fully one-half are said to have proved fatal. As yet, we cannot say which statement is the more correct. Fewer persons, indeed, have been attacked than in 1831, but it seems doubtful whether the relative number of recoveries has been greater.

There is a point in the natural history of the Cholera, (and indeed of almost all epidemic diseases) which it is most necessary to bear in mind, when we seek to ascertain the *real* effects of medical treatment upon its ravages ;—I allude to the fact that the malignancy of the disease is usually much greater immediately or very soon after its distinct appearance in a place, than at a later period of its existence there. Its sojourn may vary from a week to a month, or to several months ; but whatever it may be, the important truth is, that the intensity or virulence of the poison—estimated by the *relative* (not the actual) number of deaths to cases—is most decided during the first-third or so of the period. Of course, therefore, a less amount of success is to be anticipated in the early than in the later stages or epochs of its duration. Upon this and some other topics full of interest, I might have enlarged, had not the limits which I have prescribed to myself prevented my doing so at present.

In conclusion, I would again earnestly impress upon the public the great importance of immediate attention being paid to every, even the slightest, symptom of disordered stomach and bowels—such as sickness, diarrhœa, or colic—during the prevalence of the epidemic, should it appear among us ; as it has not unfrequently happened that the neglect of the premonitory symptoms has been suddenly followed by a rapidly-fatal attack of the disease.

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